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DEPARTMENT OF COMMERCE AND LABOR

BUREAU OF THE CENSUS

E. DANA DURAND, DIRECTOR

# UNIFORM ACCOUNTS

FOR

# SYSTEMS OF WATER SUPPLY

ARRANGED BY REPRESENTATIVES OF THE UNITED STATES BUREAU OF THE CENSUS, AMERICAN WATER-WORKS ASSOCIATION, NEW ENGLAND WATERWORKS ASSOCIATION, AMERICAN ASSOCIATION OF PUBLIC ACCOUNTANTS, OHIO BUREAU OF UNIFORM PUBLIC ACCOUNTING, AND OTHERS INTERESTED

WASHINGTON
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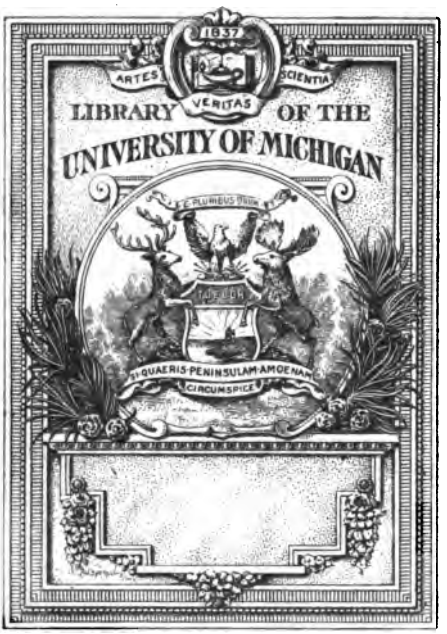
1911

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DEPARTMENT OF COMMERCE AND LABOR

U.S. BUREAU OF THE CENSUS

E. DANA DURAND, DIRECTOR.

# UNIFORM ACCOUNTS

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# SYSTEMS OF WATER SUPPLY

ARRANGED BY REPRESENTATIVES OF THE UNITED STATES BUREAU OF THE CENSUS, AMERICAN WATER WORKS ASSOCIATION, NEW ENGLAND WATER WORKS ASSOCIATION, AMERICAN ASSOCIATION OF PUBLIC ACCOUNTANTS, OHIO BUREAU OF UNIFORM PUBLIC ACCOUNTING, AND OTHERS INTERESTED

WASHINGTON
GOVERNMENT PRINTING OFFICE
1911

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## LETTER OF TRANSMITTAL.

DEPARTMENT OF COMMERCE AND LABOR,
BUREAU OF THE CENSUS,
*Washington, D. C., August 5, 1911.*

SIR: I have the honor to transmit herewith a monograph presenting a scheme of uniform accounts for systems of water supply, arranged at a conference of, and by correspondence between, representatives of the Bureau of the Census, American Water Works Association, New England Water Works Association, American Association of Public Accountants, Ohio Bureau of Uniform Accounting, and others interested in the subject.

The object of this conference was to devise a system of accounts that would be adequate for setting forth a complete statement of financial transactions covering the revenues, expenses, and outlays of water-supply systems, and accurately accounting for their assets and liabilities. The difficulties heretofore encountered in the comparative study of municipally owned and privately owned water-supply systems suggested the desirability of a uniform system of accounts applicable to both classes of enterprises. The activity of the Bureau of the Census in this matter arises from its desire to present in its annual reports on statistics of cities data for municipal water works which may be of the greatest possible value to municipalities, to the general public, and to students of this subject.

In the preparation of this scheme of uniform accounts for water-supply systems the Bureau of the Census was represented by Mr. Le Grand Powers, chief statistician in charge of statistics of cities, and through his efforts, in a very large degree, the work was brought to completion.

Very respectfully,

E Dana Durand

*Director of the Census.*

Hon. CHARLES NAGEL,
*Secretary of Commerce and Labor.*

# UNIFORM ACCOUNTS FOR SYSTEMS OF WATER SUPPLY.

## INTRODUCTION.

The accompanying scheme for uniform accounts and reports for water-supply enterprises had its inception in the adoption by the New England Water Works Association in 1885 of its form for uniform reports. The adoption of that form and its use for many years by a considerable number of privately and publicly owned water-supply systems has been an educative force, teaching the public the value of uniform reports for all such systems.

Since the adoption of that form for uniform reports the science and art of accounting have made great and rapid progress. Uniform accounts have come to be recognized as the only correct basis of uniform reports in the industrial, banking, and commercial world. Public service commissions and associations of many classes of corporations have given great attention to the subject. Many schemes of uniform accounts have been arranged and adapted to varying lines of business activity. In 1907 the Bureau of the Census began a study in this field, with the object of opening the way for preparing at a later date uniform statistics of the assets and operations of water-supply systems. A little later the American Water Works Association, becoming interested in the subject, appointed a special committee to study the same. This committee, with Mr. Albert H. Wehr, of Baltimore, as chairman, has given a great amount of study to the subject and made its preliminary report to the American Water Works Association at its thirtieth annual session, held in New Orleans in 1910.

Just prior to the meeting of that convention the Bureau of the Census, by its director, Mr. E. Dana Durand, issued a call for a conference in Washington, D. C., May 24 and 25, of all those interested in uniform accounts for waterworks. At this conference, of which Mr. Le Grand Powers, chief statistician of the census, was chairman, were present representatives of the Bureau of the Census, the American Water Works Association, the New England Water Works Association, the American Association of Public Accountants, the Association of American Governmental Accountants, the Ohio Bureau of Uniform Public Accounting, and a number of individuals representing public and private water-supply enterprises. As a result of that conference and later correspondence between Mr. Wehr, chairman of the committee of the American

Water Works Association, and representatives and others present at the conference, the accompanying brief outline scheme of accounts and the instructions which accompany the same have been prepared.

The scheme here presented is arranged in two parts—one for systems with very limited transactions which will, as a rule, require general ledger accounts that number few, if any, more than 10; and the other for those enterprises that will need a larger number.

**Requirements for a successful scheme of uniform accounts.**—The annual revenues of different water-supply enterprises vary from less than $1,000 to over $10,000,000 per annum, and their assets vary from less than $10,000 to over $150,000,000. The number of accounts that are required or that can be used to advantage for administrative purposes by any enterprise must vary with the volume of business and assets; and hence a uniform system of accounts must first of all be adjustable to the requirements of large and small enterprises, and to this end must have the following characteristics:

1. The financial data must be so classified and the accounts so arranged that the accounts will provide summaries of results or conditions along the same fixed lines and upon the same basis, so that comparisons can be made between the summaries of different fiscal periods and between those of similar enterprises.

2. The accounts must so divide and subdivide expenses as to disclose the three elements which make up the total cost of service—the demand cost, the customer cost, and the consumption cost; and in turn must separate these costs into those that are fixed and those that are variable, so that from the data it will be possible to determine the equity and wisdom of the existing rates for service and also to make all proper revision of incorrect rates for such service.

3. The accounts must be so designated as to make the system readily understood, and thus easy of application.

## ACCOUNTS OF A SINGLE ORDER.

To meet the requirements stated the scheme here presented provides ten accounts for the smallest systems, numbered from 0 to 9, and are here given specific names or titles, as follows:

0. Water-service revenues.
1. General expenses.
2. Operating expenses.
3. Maintenance expenses.
4. Miscellaneous revenues and expenses.
5. Profit and loss.
6. Fixed assets and funds.
7. Current and nominal assets.
8. Proprietary interests.
9. Liabilities.

**Explanations and definitions.**—Accounts 0 to 4 are for recording revenues and expenses, account 5 is for summing up such accounts, and accounts 6 to 9 for recording assets and proprietary interests and liabilities. The terms here used and found in the titles to the foregoing accounts may be defined as follows:

**Revenues.**—The revenues of a water-supply system are the amounts of money or money's worth which it becomes lawfully entitled to receive, or which accrue to its benefit from furnishing water or other commodities or by rendering other services to customers, and from interest or return on moneys or other properties.

**Expenses.**—The expenses of a water-supply system are: (1) The accrued costs paid or payable of services, rents, and materials utilized in the conduct or management of its business, and (2) its losses due to depreciation and other causes.

**Assets.**—The assets of a water-supply system are the properties or wealth in its possession or at its disposal, including rights of action, franchises, and good will or going value.

**Outlays.**—The outlays or capital expenditures of a water-supply enterprise are the accrued costs paid or payable, of land, and other assets more or less permanent in character, which are owned and utilized in the business of collecting and supplying water to customers.

**Proprietary interests.**—The proprietary interests in a water-supply system are the property rights or equity of its stockholders, or others who constitute the owners or proprietors of the business, in the assets or wealth belonging to or employed in or by the business enterprise. These interests are always equal to the excess of the value of the assets over the amount of liabilities.

**Liabilities.**—The liabilities of a water-supply system are the amounts of money or money's worth which it is under legal obligation to pay, deliver, or render to others.

**General rules of accounting.**—All items of expenditure should be carefully classified by the heads of departments responsible therefor. When bills or invoices and vouchers contain amounts chargeable to several accounts, the account to which each item is to be charged or credited should be noted opposite the amount on the bill, invoice, or voucher.

Supplies, materials, and tools, as issued from the storerooms, should be charged direct to the account benefited. Repairs of tools should follow the same course.

Salaries of clerks, foremen, and street foremen should be charged direct to the proper account in proportion to the time employed.

In classifying items care should be taken to distinguish between expenses and outlays or capital expenditures. This is especially necessary in the case of construction work performed by the force employed in operation. When questions arise in this connection, it should be remembered

that all costs of drafting and other preliminary work and supervision, whether the work is done by employees of the enterprise or by contract, should be charged as outlay or asset accounts. But discretion must be exercised so as to preclude the charging of a single dollar of expense to an asset account; and to be on the safe side, the tendency should be, when in doubt, to charge to expense.

"Labor" should be understood to mean not only the manual work of laborers and mechanics, but also superintendence, supervision, clerical work, engineering, other than the preliminary engineering of a general character, and other items of a similar character, so far as they are chargeable directly to the account referred to or affected.

"Materials" should be understood to mean not only finished and unfinished products, appliances, or parts, but such smaller articles as are usually termed "supplies," including in every case freight and drayage charges thereon, if any.

"Tools" should be understood to mean hand tools of mechanics and other tools used in work chargeable to the account referred to or affected.

The cost of experiments should be charged under "Expenses" to the account most affected or benefited, unless such experiments are made in connection with and preliminary to some construction work, in which case this cost should be charged to the proper asset account.

**General instructions.**—The majority of the smallest water-supply enterprises, those making use of accounts 0 to 9, should in a general way observe the rules of good accounting employed in ordinary commercial enterprises. The only instructions given in addition to the foregoing are expressed in the most general terms. The managers of small enterprises desiring more detailed instructions for these accounts will find them set out in the instructions for that order of accounts here called "General," which are given index numbers having two digits.

**Account 0.**—The amounts to be credited to account 0 as "Water-service revenues" should in all cases be "net." If bills are made out subject to discount, only that portion of the amounts stated in them should be credited to the account. All amounts credited to account 0 should be debited to account 7—"Current and nominal assets." Amounts debited to account 7 on water bills made out in advance should, however, be credited to account 9—"Liabilities." (See instructions for accounts 00 to 07.)

**Account 1.**—Charge to account 1 all the net costs of overhead or general charges, including those for insurance, taxes, and franchise dues. (See instructions for accounts 11 to 19.)

**Account 2.**—Charge to this account all the "net" costs of service, rents, and materials other than those for overhead charges or general expenses, which are used in the management or conduct of the business of furnishing water to customers. Similar costs of keeping the fixed properties and equipment of the enterprise in good working order should

be recorded in account 3, and costs of replacements, renewals, betterments, and additions in account 6, or jointly in accounts 3 and 6, as directed in the instructions for account 6. All amounts charged to account 2 should be credited to account 7 if paid by cash, and to account 9 if the expense gives rise to a liability. (See instructions for accounts 21 to 27.)

**Account 3.**—Account 3 should be charged with all costs of repairs and all losses by depreciation, and the debit entries in this account should be balanced by credit entries in accounts 7 or 9, as directed for account 2. (For specific directions with reference to the charges to be included as costs of repairs and losses by depreciation, see instructions for accounts 31 to 39.)

**Account 4.**—All miscellaneous revenues should be credited to account 4, and all miscellaneous expenses debited to the same account. These revenues include all that are not derived from supplying water to customers, and these expenses include all expenses not incurred in the same service and all costs of gratuitous work. (See instructions for accounts 41 to 47.)

**Account 5.**—This account, as is expressed by its title, is arranged for the purpose of allocating the profits and losses of the enterprise. Accounts 0, 1, 2, 3, and 4 should all be closed into this account. The account should then be debited with all bad debts written off as uncollectable and credited with amounts received from other debts previously written off as uncollectable. When the balance of these accounts and entries is secured, account 5 should be debited with all interest charges that have accrued during the year, all rentals that have accrued on subordinate water systems controlled by the system for which these accounts are kept, and with all dividends declared and all appropriations of surplus for funds, reserves, and other purposes. In like manner, the account should be credited with all assessments on stockholders to meet losses. In the case of a municipally operated enterprise the same account should be debited with the value of all services rendered without compensation by the enterprise to the city, and credited with the value of all services rendered without compensation to the enterprise by the city. (See instructions for accounts 51 to 59.)

**Account 6.**—This account is arranged for the use of small enterprises in keeping a record of their fixed assets and of such special funds as they may have. It should be debited with the cost of all new properties, whether original construction, additions, betterments, renewals, or replacements, and the cost of these properties should be credited to account 7 if paid for by cash, or to account 9 if their construction or acquisition gives rise to a liability. The account should also annually be credited and account 3 debited with an amount equal to the estimated depreciation which the plant has suffered during the year. For methods of estimating depreciation, see instructions on later pages for general

accounts with depreciation. When old properties are replaced with new ones, or betterments constructed, account 6 should, after the debit last described, be credited, and account 3 debited, with the book value of the replaced property at the time of the replacement or betterment. Account 6 should also be debited with all transfers of cash to sinking funds and other special funds, as well as with all costs of securities and other properties purchased for those funds, and should be credited with all payments of cash from those funds and with all sales of securities or other investments belonging to the funds. (See instructions for accounts 61 to 69.)

**Account 7.**—This account should be debited with the value of all current and nominal assets coming into the possession of the enterprise, including cash, investments other than those of special and sinking funds, all accounts and bills receivable, prepaid expenses, deferred expenses, and unamortized costs and losses. When the account is thus debited, the proper revenue, expense, asset, or liability account should be credited. (See instructions for accounts 71 to 78.)

**Account 8.**—This account is arranged for keeping a record of the proprietary interests of the owners of the enterprise. If the owner is a private corporation, the account will be used for keeping a record of its capital stock and surplus; if the owner is a private individual or firm, the account should be employed for keeping account of the interests of the individual or firm members; while if the owner is a municipality, the account should be used for recording the interests of the city in the enterprise. (See instructions for accounts 81 to 88.)

**Account 9.**—This account is provided for keeping a record of all the liabilities incurred by the enterprise, whether those liabilities involve the issue of long-term obligations (usually called "fixed") or short-term obligations (usually called "current" or "floating"). (See instructions for accounts 91 to 99.)

## ACCOUNTS OF TWO OR MORE ORDERS.

**Summary and general accounts.**—Accounts such as those above described will suffice for only the smallest enterprises. Larger enterprises will require for their proper administration more numerous accounts. To meet their accounting requirements the accounts should be arranged in ten groups corresponding to the ten accounts provided for the smallest enterprises, and the accounts of each group should be arranged in two orders, here called *summary* and *general*. The summary accounts are identical in character with the ten accounts of the smallest enterprises, and are given the same numbers and titles. Each summary account is the controlling account of a group of general accounts, each of which is given a number with two digits, the first being identical with the number of its summary or controlling account. Thus the water-service revenue general accounts are given the numbers 01, 02, 03, etc., and the operating expense general accounts are numbered 21, 22, 23, etc. The same principle governs the numerical designation of all the other general

accounts. In addition to its number, each general account is given a specific designation descriptive of the character of the data recorded therein. Small establishments whose accounting requirements necessitate the use of only a few ledger accounts in addition to the ten summary accounts can select from the general accounts mentioned such as they may desire, giving to such accounts the numbers and titles stated. Thus one of these small concerns which does not find it advisable to keep more detailed accounts with revenues and expenses than could be done by the aid of accounts 0, 1, 2, 3, 4, and 5, may wish to keep such accounts with its permanent properties. Such a concern can use general accounts 61 to 69 while employing only the summary accounts 1 to 5. Other small establishments whose accounting requirements necessitate more than the ten summary accounts can make use of others of the general accounts, or all of those accounts, according to their needs, and in accordance with the principles set forth in the paragraphs which follow the numbers and titles of the accounts.

**Subgeneral accounts.**—The largest enterprises, whose accounting requirements can not be met with as small a number of ledger accounts as these here given, and called summary and general, will be able to supply these wants by using a third order of accounts, those represented by numbers with three digits and given specific designations. These accounts of the third order are here called "subgeneral." Each subgeneral account is subordinate to a general account having a number identical with that represented by its first two digits. The subgeneral accounts are all closed or balanced into their proper general accounts, as the general accounts are closed or balanced into their proper summary accounts. The subgeneral accounts that may be used, as stated above, subordinate to the general accounts are given in the instructions which follow for the general accounts.

**Primary accounts.**—It should be further noted in this connection that water-supply systems that have a volume of business whose accounting wants can not be fully met with ledger accounts of the three orders here called summary, general, and subgeneral, may use such a number of a fourth order of accounts as they may need. The accounts of this fourth order are here called "primary," and if employed, they should be given numbers expressed in four digits. The primary accounts should be arranged subordinate to, and at the close of the year should be balanced into, the subgeneral accounts in the same way as the subgeneral are arranged subordinate to and balanced into the general accounts. The primary accounts subordinate to a given subgeneral account should be given numbers the first three digits of which are the same as are possessed by those of that subgeneral account to which they are made subordinate. Each primary account should be given a specific name descriptive of the character of the items to be recorded therein as well as the four-digit number directed above. No outline scheme of primary accounts has been prepared, but everything with reference

thereto is left for the time being to the discretion of the managers of those systems which require their use.

**General accounts.**—The list of general or two-digit accounts that can best be used by the larger enterprises in connection with the two orders of accounts here presented is given below. If it is desired to consolidate any two or more of the general accounts belonging to any group, such consolidated accounts should be given the number in such group ending with a cipher (0), together with such title as will clearly indicate the accounts therein consolidated. (See also "Instructions for consolidated general accounts," p. 16 and 17.)

0. WATER-SERVICE REVENUES.
    - 00. .....
    - 01. Rates for metered private service.
    - 02. Rates for unmetered private service.
    - 03. Rates for service to other waterworks.
    - 04. Rates for municipal service.
    - 05. Rates for self-consumed service.
    - 06. Fees for shutting off and turning on water.
    - 07. Additions on delinquent accounts.
1. GENERAL EXPENSES.
    - 10. .....
    - 11. Administrative expenses.
    - 12. Accounting and commercial expenses.
    - 13. Business promotion expenses.
    - 14. Legal expenses.
    - 15. Injuries and damages.
    - 16. Public regulation expenses.
    - 17. Insurance.
    - 18. Taxes.
    - 19. Franchise dues.
2. OPERATING EXPENSES.
    - 20. .....
    - 21. Operating management expenses.
    - 22. Collecting system expenses.
    - 23. Purification expenses.
    - 24. Steam power pumping expenses.
    - 25. Hydraulic power pumping expenses.
    - 26. Electric and gas power pumping expenses.
    - 27. Distribution expenses.
3. MAINTENANCE EXPENSES.
    - 30. .....
    - 31. General repairs.
    - 32. Collecting system repairs.
    - 33. Purification system repairs.
    - 34. Steam power pumping system repairs.
    - 35. Hydraulic power pumping system repairs.
    - 36. Electric and gas power pumping system repairs.
    - 37. Distribution system repairs.
    - 38. Depreciation and amortization—general.
    - 39. Depreciation and amortization—departmental.

4. MISCELLANEOUS REVENUES AND EXPENSES.
   40. .....
   41. Revenue and expenses of incidental operating properties.
   42. Revenue and expenses of accessory enterprises.
   43. Revenue and expenses of funds.
   44. Revenue and expenses of investments.
   45. Interest on cash balances.
   46. Costs of gratuitous work.
   47. Sundry revenues and expenses.
5. PROFIT AND LOSS.
   50. .....
   51. Water-service income or loss.
   52. Miscellaneous income or loss.
   53. Bad accounts charged off and collected.
   54. Interest and system rentals.
   55. Dividends and other appropriations of profits.
   56. Appropriations to funds and reserves.
   57. Assessments and other allocation of losses.
   58. Current transactions of municipal waterworks with city.
   59. Sundry appropriations and allocations.
6. FIXED ASSETS AND FUNDS.
   60. .....
   61. General assets—tangible.
   62. General assets—intangible.
   63. Operating management properties.
   64. Collecting system properties.
   65. Purification system properties.
   66. Pumping system properties.
   67. Distribution system properties.
   68. Miscellaneous properties.
   69. Funds.
7. CURRENT AND NOMINAL ASSETS.
   70. .....
   71. Cash.
   72. Investments (other than fund assets).
   73. Accounts receivable.
   74. Notes and bills receivable.
   75. Prepaid accounts.
   76. Materials and supplies.
   77. Deferred expenses and losses.
   78. Miscellaneous nominal assets
   Corporate deficit (balancing account).
8. PROPRIETARY INTERESTS.
   80. .....
   81. Corporate capital stock.
   82. Noncorporate interests.
   83. Depreciation and amortization reserve.
   84. Deferred maintenance reserve.
   85. General reserves.
   86. Reserve for losses in suspense.
   87. Reserve for losses not recorded in asset accounts.
   88. Surplus unreserved.

9. LIABILITIES.

90. .....
91. Funded debt.
92. Floating debt.
93. Customers' deposits.
94. Notes and bills payable.
95. Accounts payable.
96. Revenue of future periods levied in advance.
97. Interest and system rentals accrued.
98. Dividends and other appropriations of profits payable.
99. Nominal liabilities.

If any large water-supply system desires to use more numerous accounts than those listed above, they can employ a few or many of the subgeneral or three-digit accounts that are mentioned in the instructions which follow. In using such subgeneral accounts the users may consolidate any number of those found in any subgroup, observing the general instructions for the consolidation of general accounts. All consolidated subgeneral accounts should be given a number ending with a cipher (0) and having the first two digits of the numbers of the accounts consolidated. They should also be given titles which clearly indicate the accounts therein consolidated. (See also "Instructions for consolidated general accounts," below.)

## INSTRUCTIONS FOR GENERAL ACCOUNTS.

**General.**—When any or all of the general accounts heretofore mentioned are employed by any water-supply enterprise, such enterprise should observe the instructions which follow with reference to such accounts, as well as those instructions previously given for accounts 0 to 9, as far as these prior instructions are applicable to the subordinate or controlled accounts.

**Unused general accounts.**—The general or two-digit accounts presented in the foregoing scheme of accounts are designed to meet all of the conditions under which American water-supply systems are operated. These conditions vary greatly, and accounts are required by some enterprises that others will not need. Enterprises operating under conditions that will not call for any records—for instance, such as those for which accounts 03, 26, 36, 43, or 44 are provided—will omit them from their ledgers. Other accounts for which no use is found should also be omitted, but all used accounts should be given the same numbers as are herein assigned to them.

**Consolidated general accounts.**—Many of the smaller water-supply systems that require more than the ten accounts used by the smallest concerns will not, even after the omission of the accounts referred to in the last paragraph, be able to use to advantage as many accounts as are presented in the foregoing list of summary and general accounts. Such concerns can combine two or more of the specified general accounts

into a single general account under some descriptive designation. All such consolidated accounts should be given numbers ending with a cipher. Thus an account in which are recorded all the data for which accounts 11 and 12 are provided would be numbered 10. The number 20 would be assigned to any account in which are recorded the data of two or more but not all of the accounts bearing the numbers 21 to 29. If two or more combinations are made in a group of general accounts they may be given numbers combined with letters (*a*), (*b*), and (*c*), as 10 *a*, 10 *b*, or 20 *a*, 20 *b*, etc. The principle here outlined may be applied to the consolidation of any of the accounts of the scheme.

## 0.—WATER-SERVICE REVENUES.

**Rates for private service.**—Water furnished by any water-supply system to private parties for compensation should be credited to general accounts 01 and 02 and debited to account 73. Water similarly furnished without compensation should be credited to the same accounts and debited to account 46. If a water-supply system has need of more than two ledger accounts for recording its rates for private service it can use some or all of the following subgeneral accounts:

01. METERED PRIVATE SERVICE—
    - 011. Metered residence rates.
    - 012. Metered commercial rates.
    - 013. Metered industrial rates.
    - 014. Metered rates for churches and private charities.
    - 015. Metered rates for miscellaneous service.

02. UNMETERED PRIVATE SERVICE—
    - 021. Unmetered residence rates.
    - 022. Unmetered commercial rates.
    - 023. Unmetered industrial rates.
    - 024. Unmetered rates for churches and private charities.
    - 025. Unmetered rates for miscellaneous service.

If the foregoing subgeneral accounts are used, include under residence rates all revenues from water, for household purposes and for barns and lawns, furnished to private dwelling houses containing either one or two families.

Under commercial rates include all revenues from water furnished to houses occupied by three or more private families, whether such houses are designated as apartment houses or tenement houses or are referred to under other names, and whether the water is charged to the separate families or to the house as a whole. Include under the same head all revenues on account of water furnished hotels, boarding houses, office buildings, stores, saloons, combinations of stores or saloons with residences, livery barns, warehouses, and buildings housing a private family and utilized also for any of the purposes here referred to.

Include under industrial rates all revenues derived from water furnished to breweries, bottling works, laundries, and manufacturing establishments of every class.

Include under rates for churches and private charities the value of water furnished free and the rates for water furnished for compensation to the institutions mentioned, and also the value of that furnished to schools and colleges under such corporate management as places their property on the same basis with respect to taxation as is the property of churches, private charities, hospitals, etc. The value of water for hospitals and schools under the control of the city should be recorded in the general and subgeneral accounts "Rates for municipal water service." When water is furnished to a church and parsonage and no separation of the service is made in the bill, the whole amount should be recorded in the account "Rates for churches and private charities."

Include under "Rates for miscellaneous water service" all revenues accruing from water furnished to builders or street-paving contractors, to circuses, and to others using water for limited periods of time without permanent service connections.

**Rates for municipal and self-consumed service.**—Water furnished a municipality by a private system should be credited to account 04 and debited to account 73 if furnished for compensation and to account 19 if furnished without compensation.

Water furnished a municipality by a municipal system without compensation should be credited to account 04 and debited to account 58. Water utilized by the system itself should be credited to account 05 and debited to that one of the operating expense accounts in which are recorded the costs of operating the department or branch of service using the water.

If a given system desires to use more numerous ledger accounts for recording rates for municipal and self-consumed service than accounts 04 and 05, they may use the following subgeneral accounts, whose titles are in a large measure descriptive of the items to be recorded therein:

04. MUNICIPAL SERVICE—
- 041. Rates for fire protection.
- 042. Rates for sewer flushing.
- 043. Rates for street sprinkling and washing.
- 044. Rates for public schools.
- 045. Rates for all other public buildings.
- 046. Rates for public parks, fountains, and troughs.
- 047. Rates for miscellaneous municipal service.

05. SELF-CONSUMED SERVICE—
- 051. Service for purification purposes.
- 052. Service for pumping purposes.
- 053. Service for plant fire protection.
- 054. Service for miscellaneous purposes.

**Accounts 03, 06, and 07.**—Amounts credited to accounts 03, 06, and 07 should be debited to account 73.

## WATER-SERVICE EXPENSES.

Under the foregoing general title are included all costs incurred and losses suffered incident to the earning and collection of the water-service revenues. These expenses are divided for convenience of accounting into three classes, here called general, operating, and maintenance expenses, each of which is given a summary account, under which are grouped general accounts, as is shown in the preceding list of such accounts.

All amounts debited to an expense account should be credited to cash if liquidated by the payment of money, or to a proper liability account if the loss suffered or the expense incurred gives rise to a liability, or to a proper asset account if the expenses represent a loss or diminution of value of an asset.

**Adjustment of joint expenses.**—When a given corporation, firm, or individual operates a water-supply system in connection with a system for furnishing gas, electricity, or other public utility or private enterprise, many expenses will be incurred for the joint interests of the several undertakings. In all such cases accounts must be kept for the business as a whole in the same detail and with accounts that will in a general way correspond with those here suggested for water-supply systems. Among these accounts must be those that record items or transactions that jointly affect the several systems. All of these joint accounts of the business as a whole should be closed up or balanced into accounts of the individual systems by charging them with their proportion of the joint expenses. The accounts of the several enterprises in which these proportional shares of joint expenses are recorded are here called "adjustment accounts." The scheme of subgeneral or three-digit accounts which accompanies this outline provides a number of such accounts for water-supply systems that are operated in any respect jointly with any other public or private enterprise. No specific instructions can be given for apportioning expenses in these accounts between jointly operated concerns, other than that it should be borne equitably in accordance with the relative volume of business or otherwise.

### 1.—GENERAL EXPENSES.

Under the title "General expenses" are to be recorded all costs which are incident to the general management of the waterworks as a business enterprise and those relating to the business as a whole other than costs of repairs. Nine general ledger accounts are provided for recording general expenses, accounts 11, 12, and 13 for recording expenses incurred for the general management, and accounts 14 to 19 for recording other general expenses. The specific classes of items to be included in the several general accounts are disclosed in a fairly intelligible manner by the titles of the various subgeneral or three-digit accounts which follow.

In addition, accountants should note the separation that this scheme calls for between the administrative, accounting and commercial, and business promotion expenses to be recorded in accounts 11, 12, and 13, and the operating management expenses to be recorded in account 21.

**Public regulation expenses.**—Charge to account 16 all expenses incurred by reason of regular and special examination of its affairs by public service commissions or other board, commission, or authority having jurisdiction over the enterprise and by such commissions, etc., made a charge against the revenues of the enterprise.

**Insurance.**—In account 17 record all costs of insurance of every kind, including costs of self-insurance incurred by creation of self-insurance fund or otherwise.

**Taxes and franchise dues.**—Record in account 18 all amounts paid as taxes by the system and in account 19 all charges that come upon the enterprise by reason of the terms of its franchise. In this latter connection note instructions for account 04.

The subgeneral accounts arranged for use by the larger enterprises in connection with general accounts 11 to 19 are as follows:

11. ADMINISTRATIVE EXPENSES—

111. Pay and expenses of administrative officers.
112. Pay and expenses of other administrative employees.
113. General administrative office supplies and expenses.
114. General administrative stationery, printing, postage, telephone, telegraph, and advertising.
115. Relief and pensions.
116. Miscellaneous expenses of general administrative offices.
117. Adjustment of general administrative expenses of city.
118. Adjustment of general administrative expenses of jointly operated enterprise.

12. ACCOUNTING AND COMMERCIAL EXPENSES—

121. Pay and expenses of accounting and commercial employees.
122. Accounting and commercial office supplies and expenses.
123. Postage, telephone, and telegraph.
124. Stationery, printing, and advertising.
125. Meter and service inspection, shut off and turn on.
126. Miscellaneous accounting and commercial expenses.
127. Adjustment of fiscal and accounting expenses of city.
128. Adjustment of accounting and commercial expenses of jointly operated enterprise.

13. BUSINESS PROMOTION EXPENSES—

131. Pay and expenses of business promotion employees.
132. Business promotion office supplies and expenses.
133. Advertising and circularizing.
134. Stationery and printing.
135. Postage, telephone, and telegraph.
136. Traveling expenses.
137. Miscellaneous business promotion expenses.
138. Adjustment of business promotion expenses of jointly operated enterprise.

14. LEGAL EXPENSES—

141. Retainers and salaries of legal department.
142. Office and general expenses of legal department.
143. General legal fees and expenses.
144. Law books, printing, and stationery.
145. Trial and settlement costs, fees, and expenses.

15. INJURIES AND DAMAGES—

151. Pay and expenses of claim department employees.
152. Attorneys' fees and expenses.
153. Medical and hospital fees and expenses.
154. Trial and settlement costs, fees, and expenses.
155. Injuries to employees.
156. Injuries to nonemployees.
157. Damages to property.
158. Other accident and damage expenses.

16. PUBLIC REGULATION EXPENSES—

161. Legal fees and expenses.
162. Expert fees and expenses.
163. Pay and expenses of employees.
164. Supplies and expenses.
165. Trial and adjustment costs, fees, and expenses.
166. Other public regulation expenses.

17. INSURANCE—

171. Insurance on general properties.
172. Insurance on operating management properties.
173. Insurance on collecting system properties.
174. Insurance on purification system properties.
175. Insurance on pumping system properties.
176. Insurance on distribution system properties.
177. Insurance on miscellaneous properties.
178. Employees' and public casualty insurance.
179. Credit, life, income, and other insurance.

18. TAXES—

181. Taxes on general properties.
182. Taxes on operating management properties.
183. Taxes on collecting system properties.
184. Taxes on purification system properties.
185. Taxes on pumping system properties.
186. Taxes on distribution system properties.
187. Taxes on miscellaneous properties.
188. Taxes on capital stock.
189. Other taxes, including taxes on earnings or receipts.

19. FRANCHISE DUES—

191. Periodical franchise dues.
192. Other franchise requirements.

## 2.—OPERATING EXPENSES.

The operating expenses of a water-supply system are the costs of materials and services, other than those for repairs, which are directly connected with the collection, purification, pumping, and distribution

of water. These expenses are readily separable into two broad groups—the operating management expenses and the departmental operating expenses. Account 21 is provided for the expenses first mentioned and accounts 22 to 27 for those last mentioned.

**Operating management expenses.**—Operating management expenses are the overhead charges connected with the operation of a waterworks as a mechanical, chemical, and biological system rather than as a business system. They are to be recorded in account 21, while all overhead charges of the waterworks as a business enterprise are to be recorded as already directed in accounts 11 to 19. The special costs to be recorded in account 21 are shown in detail by the titles of the subgeneral accounts 211 to 218, which follow:

21. OPERATING MANAGEMENT EXPENSES—

211. Pay and expenses of operating management employees.
212. Operating management office supplies and expenses.
213. Laboratory salaries and expenses.
214. Engineering salaries and expenses.
215. Store room and yard expenses.
216. Miscellaneous operating management expenses.
217. Adjustment of operating management expenses of city.
218. Adjustment of operating management expenses of jointly operated enterprise.

**Departmental operating expenses.**—Departmental operating expenses include all operating expenses other than operating management. Departmental operating expenses should be classified according to the different branches of the waterworks here called collecting, purification, pumping, and distribution systems.

In recording these expenses note that the collecting system includes reservoirs, dams, and other structures and fixtures used for the collection of water and for conveying it to the purification or pumping works, the land upon which such reservoirs, structures, and fixtures are located, and the structures and improvements upon such lands which are not used for purification, pumping, or distribution purposes.

The purification system includes the land, reservoirs, buildings, fixtures, equipment, and appliances that are employed for the purification of water.

The pumping system includes the machinery, fixtures, and equipment of the enterprise which are employed directly and indirectly in the pumping of water, the lands on which such fixtures and machinery are located, and all buildings and other improvements thereon.

The distribution system is that portion of a waterworks which consists of the distribution reservoirs, standpipes, pipes, elevated tanks, and other fixtures and appliances connected with the distribution of water to customers, or the storage for distribution, together with the land and rights of way upon which the same are located, and the buildings and other structures provided for use in connection therewith.

The costs of services and materials which constitute departmental operating expenses should be classified according to the subdivisions of the collecting, purification, pumping, and distribution systems to which they relate and to the specific service or material which gives rise to the cost substantially as is set forth in the titles of the subgeneral accounts to be used in connection with the general accounts 22 to 27 and which are as follows:

22. COLLECTING SYSTEM EXPENSES—

221. Cost of water.
222. Reservations and drainage area.
223. Impounding dams and reservoirs.
224. Lake and river cribs.
225. Springs and wells.
226. Infiltration galleries and tunnels.
227. Collecting conduits and reservoirs.
228. Gravity intakes and suction mains.
229. Aqueducts and supply mains.

23. PURIFICATION EXPENSES—

231. Sedimentation.
232. Coagulation.
233. Softening and iron removal.
234. Roughing filtration.
235. Slow sand filtration.
236. Mechanical filtration.
237. Ozone sterilization and aeration.
238. Chemical treatment.
239. Clear water basins.

24 STEAM POWER PUMPING EXPENSES—

241. Pay and expenses of employees.
242. Purchased steam power.
243. Proportion of steam power expenses of jointly operated enterprise.
244. Fuel.
245. Water.
246. Oils and waste.
247. Supplies.
248. Rent.
249. Station expenses.

25. HYDRAULIC POWER PUMPING EXPENSES—

251. Pay and expenses of employees.
252. Purchased hydraulic power.
253. Proportion of hydraulic power expenses of jointly operated enterprise.
254. Periodical water power rights charges.
255. Oils and waste.
256. Supplies.
257. Rent.
258. Station expenses.

26. ELECTRIC AND GAS POWER PUMPING EXPENSES—

261. Pay and expenses of employees.
262. Purchased electricity and gas.
263. Proportion of electric and gas power expenses of jointly operated enterprise.
264. Gas production supplies.
265. Water.
266. Oils and waste.
267. Supplies.
268. Rent.
269. Station expenses.

27. DISTRIBUTION SYSTEM EXPENSES—

271. Transmission mains.
272. Distribution storage reservoirs, tanks, and standpipes.
273. Distribution main pipes and specials.
274. Main pipe valves and valve boxes.
275. Fire hydrants, fire cisterns, and connections.
276. Main pipe fixtures and appliances.
277. Service pipes and stops.
278. Meters, meter boxes, and meter vaults furnished rent free.
279. Fountains, troughs, and other equipment.

## 3.—MAINTENANCE EXPENSES.

Maintenance expenses include the costs of services and materials incident to the repair of the properties of waterworks and the losses due to depreciation and amortization of these properties.

*Expenses for repairs* are the costs of those mechanical and physical changes in the fixed properties and equipment constituting parts of the fixed assets of an enterprise which are called *repairs*. These repairs are changes which primarily affect the results of current operating rather than the value of the properties or equipment. They are changes made for the purpose of keeping the properties in as good working order as they were originally expected to be after the lapse of time which intervenes between the date of acquisition or construction and that of repairs. The term "repairs" should therefore not be applied to any mechanical or physical changes which result in new structures or equipment, or in such reconstruction of the old structures or equipment as makes them in all respects as valuable and serviceable as, or of greater capacity than, they were at the time of original construction or acquisition. All costs for the changes last referred to should be recorded in asset accounts, for which see later instructions.

*Expenses for depreciation* are the current losses suffered by an enterprise as the result of a lessening in the value of its properties due (1) to decay, wearing out, destruction, or obsolescence of tangible assets as the result of physical changes or uses; or (2) to the supersession of tangible properties, or the destruction of the value of intangible assets, as the result of new inventions or discoveries, or of changes in popular demand for or upon the properties or equipment affected, or of legislation or

other factors affecting the value of the same. A lessening or diminution in value due to the factors mentioned under (1) is here called a *physical depreciation*, and that brought about by the factors mentioned under (2) a *functional depreciation*. Physical depreciation due to the gradual decay, wearing out, or obsolescence of physical properties is here called *ordinary physical depreciation*, while that produced as the result of some unforeseen casualty is called *extraordinary physical depreciation*. The term *depreciation* when used without any qualifying word will, in the accompanying instructions, be understood as meaning "ordinary physical depreciation," and the phrase *depreciation by supersession* will be employed interchangeably with that of "functional depreciation." The latter is always to be classed as an *extraordinary depreciation*.

The losses suffered by depreciation, and thus the current expenses properly chargeable under that head, can seldom be ascertained and accurately stated at the time when they occur or are suffered, and hence can be expressed in accounts only by estimates. Some general rules for the preparation of these estimates are given in the instructions for expense accounts which follow. Some accountants, instead of using the word "depreciation" in accounts, as in the term "expenses for depreciation," use the term "amortization of fixed assets" or kindred terms involving the use of the word "amortization" in connection with the name of the asset affected by depreciation. In this scheme of accounts the word *amortization* is used in this sense only in connection with intangible assets, such as franchise values, the value of patent rights, etc., and terminable rights in land.

**Costs of repairs.**—The costs of repairs should be distributed in account 31 or accounts 32 to 37, according as they were incurred in connection with properties used for the general management, or in the four departmental systems of the enterprise. In charging the costs of repairs carefully distinguish between repairs and those physical changes generally called replacements, betterments, and additions, as set forth in the definition of expenses for repairs. The costs of repairs should be distributed as called for by the titles of general accounts 31 to 37 and if use is made of subgeneral accounts, according to the titles of those accounts as given in the list which follows:

31. General repairs—
    - 311. Repairs of administrative properties.
    - 312. Repairs of accounting and commercial properties.
    - 313. Repairs of business promotion properties.
    - 314. Repairs of operating management office properties.
    - 315. Repairs of laboratory properties.
    - 316. Repairs of engineering properties.
    - 317. Repairs of store room and yard properties.
    - 318. Repairs of miscellaneous general properties, including repairs and replacement of general hand tools.
    - 319. Adjustment of general repairs of properties used by jointly operated enterprises.

32. COLLECTING SYSTEM REPAIRS—

321. Reservations.
322. Impounding dams and reservoirs.
323. Lake and river cribs.
324. Springs and wells.
325. Infiltration galleries and tunnels.
326. Collecting conduits and reservoirs.
327. Gravity intakes and suction mains.
328. Aqueducts and supply mains.

33. PURIFICATION SYSTEM REPAIRS—

331. Sedimentation.
332. Coagulation.
333. Softening and iron removal.
334. Roughing filtration.
335. Slow sand filtration.
336. Mechanical filtration.
337. Ozone sterilization and aeration.
338. Chemical treatment.
339. Clear water basins.

34. STEAM POWER PUMPING SYSTEM REPAIRS—

341. Station buildings, fixtures, structures, and surroundings.
342. Fuel and ash handling and storage equipment.
343. Boilers, stacks, and connections.
344. Feed water equipment, superheaters, economizers, damper regulators, etc.
345. Proportion of steam power plant repairs of jointly operated enterprise.
346. Steam and exhaust piping.
347. Steam engines, condensers, and auxiliary apparatus.
348. Pumps and pumping equipment.
349. Appurtenant equipment and appliances.

35. HYDRAULIC POWER PUMPING SYSTEM REPAIRS—

351. Station buildings, fixtures, structures, and surroundings.
352. Dams and appurtenant structures and equipment.
353. Canals, flumes, and relief structures and equipment.
354. Fore bays, wheel pits, and power utilization structures.
355. Proportion of hydraulic power plant repairs of jointly operated enterprise.
356. Water wheels and power transmission equipment.
357. Governors and other control apparatus.
358. Pumps and pumping equipment.
359. Appurtenant equipment and appliances.

36. ELECTRIC AND GAS POWER PUMPING SYSTEM REPAIRS—

361. Station buildings, fixtures, structures, and surroundings.
362. Electric power generating plant and equipment.
363. Gas producer plant and apparatus.
364. Gas storage and transmission equipment.
365. Proportion of electric and gas power plant repairs of jointly operated enterprise.
366. Electric power utilization apparatus and equipment.
367. Gas power utilization apparatus and equipment.
368. Pumps and pumping equipment.
369. Appurtenant equipment and appliances.

37. DISTRIBUTION SYSTEM REPAIRS—

371. Transmission mains.
372. Distribution storage reservoirs, tanks, and standpipes.
373. Distribution main pipes and specials.
374. Main pipe valves and valve boxes.
375. Fire hydrants, fire cisterns, and connections.
376. Main pipe fixtures and appliances.
377. Service pipes and stops owned by waterworks.
378. Meters, meter boxes, and meter vaults furnished rent free.
379. Fountains, troughs, and other equipment.

**Losses by depreciation.**—The losses of a corporation or municipality operating a water-supply system or other public service utility enterprise are progressively increasing with the passage of years for each structure, fixture, or appliance constituting a part of its nonlanded and of some classes of its landed permanent properties. Expressed in mathematical terms, it is now a more or less accepted axiom of business management that the losses from depreciation for any given piece of property, or of the water-supply system as a whole, through a number of years constitute a geometrical series of which the loss of each year is a small percentage greater than that for the preceding year, while the aggregate loss at the expiration of the life of such piece of property, or system, is equal to its initial cost, less its scrap value at the end of such useful life. The line which would represent this progressive increase of loss is sometimes called a "sinking-fund curve," since it is used to represent graphically the progressive increase in the assets of a sinking fund whose resources are all kept invested at interest and into which is annually paid a fixed sum, and all its interest earnings are also added to the principal of the fund.

Depreciation is neither actually nor relatively the same for any two establishments, even for the same industry. For this reason it is impossible to frame concise general rules for making allowances for depreciation which will not in their application be attended with a large margin of possible error. To use such rules without causing errors, those employing them must have for each individual establishment exact data based upon inspection, showing how far and in what respects its actual depreciation differs from that of the average establishment of its class. For this reason a physical examination and appraisal of waterworks should be made every 10 years, or even more frequently, to provide the basis for an approximate estimate or statement of the annual loss chargeable as an expense to depreciation. In the absence of such exact data for each water-supply system, however, it is to be assumed that depreciation takes place according to the average life of the several parts of such system and of water-supply plants as a whole.

Until further study and experience or a series of inspections and appraisals at fixed intervals furnish more accurate data, the average life of the various parts of the fixed properties of a water-supply enterprise may be

assumed to be approximately as follows: For horses, carriages, automobiles, and laboratory apparatus and appliances, 10 years; water meters, service pipes, office furniture, and general operating equipment, 15 years; boilers, steam pipes, and filtration equipment, 20 years; engines, pumping machinery, and wood pipes, 25 years; masonry of filtration plant, cribs, iron water pipes, intakes and connections, fire hydrants, standpipes, and buildings, 50 years; reservoirs, tunnels, and aqueducts, 100 years; and for the water-supply system as a whole, 50 years. All these approximations are subject to modification by reason of any unusual conditions which may shorten or prolong the life estimated above.

American tables of depreciation have been calculated on the basis of various percentages of annual increment, but only a physical examination of the properties of any given enterprise from time to time can determine which one of these tables best reflects the actual depreciation which has taken place in any particular water-supply system. The amount of that depreciation has no relation to the rate of interest which a depreciation fund can earn, but is a question of fact to be ultimately determined by physical inspection.

Having selected a table of depreciation which gives promise of being the best suited for the use of his enterprise, the superintendent, or other officer in control, can readily from the table or from the diagram of the same ascertain the per cent of depreciation which has taken place since the construction or acquisition of the plant.

The depreciation of a water-supply system in a given year, calculated by deducting the net value arrived at as above at the end of a given year from the net value at the end of the preceding year, should be debited to account 38 or 39, and credited to the appropriate fixed-asset account, or to either account 86 or 87, or jointly to both, as is directed on a later page. When detailed information is wanting for computing depreciation as outlined in these instructions for each and every part of the system, it may be assumed that the current depreciation for the system as a whole is approximately 2 per cent of the original cost of the system.

**Amortization of intangible assets.**—Intangible assets which are terminable after a definite number of years, such as patent rights, licenses, and terminable franchises, should be amortized in equal amounts proportioned to the number of years of life of the asset. Intangible assets in the nature of capitalized costs of preliminary operations, discounts on outstanding stock, and costs of promotion, should be amortized in equal payments for such number of years as the management finds is consistent with the best business administration. The amounts of intangible assets annually amortized should be charged to account 38 and credited to account 62, or to either account 86 or 87, or jointly to both, as is directed on a later page.

**Expense accounts with depreciation and amortization charges.**—Two general accounts are provided for recording accruing charges for

depreciation and amortization. They are the accounts numbered 38 and 39. If more detailed accounts for these expenses are required than the two mentioned, it is recommended that use be made of subgeneral accounts such as these which follow:

38. DEPRECIATION AND AMORTIZATION—GENERAL—

381. Depreciation and amortization of administrative properties.
382. Depreciation and amortization of accounting and commercial properties.
383. Depreciation and amortization of business promotion properties and costs.
384. Amortization of corporate franchises or corporate charter.
385. Amortization of operating franchises or highway easements.
386. Amortization of the cost of preliminary operations.
387. Amortization of patent rights and licenses.
388. Amortization of discounts on outstanding stock.
389. Depreciation and amortization of miscellaneous general properties.

39. DEPRECIATION AND AMORTIZATION—DEPARTMENTAL—

391. Depreciation and amortization of operating management properties.
392. Depreciation and amortization of collecting system properties.
393. Depreciation and amortization of purification system properties.
394. Depreciation and amortization of steam power pumping properties.
395. Depreciation and amortization of hydraulic power pumping properties.
396. Depreciation and amortization of electric and gas power pumping properties.
397. Depreciation and amortization of distribution system properties.

## 4.—MISCELLANEOUS REVENUE AND EXPENSES.

In account 41 are to be recorded the revenue from and expenses of operation and maintenance of such incidental operating properties as general shops, stables, teams, etc. In account 42 should be recorded the corresponding revenue and expenses of accessory enterprises, such as those arising from compensated plumbing work, rented real property, rented meters, meter boxes, and meter vaults, and products of forest lands on reservations in the drainage area, etc. In accounts 43 to 47 are to be recorded other miscellaneous revenue and expenses. The names of the accounts will in these cases be a sufficient index of the character of the data to be recorded in the same. Such further information relating to the important uses of these accounts and accounts 41 and 42 may be gathered from the titles of the subgeneral accounts which are listed in connection with these accounts, as follows:

41. INCIDENTAL OPERATING PROPERTIES—

411. Revenue and expenses of general shops.
412. Revenue and expenses of stables and teams.

42. ACCESSORY ENTERPRISES—

421. Revenue and expenses of compensated plumbing work.
422. Revenue and expenses of rented real properties.
423. Revenue and expenses of rented meters, meter boxes, and meter vaults.
424. Revenue and expenses of forest lands.
425. Revenue and expenses of miscellaneous accessory enterprises.

43. FUNDS—

431. Revenue and expenses of sinking funds.
432. Revenue and expenses of replacement and renewal funds.
433. Revenue and expenses of special funds.

44. INVESTMENTS—

441. Revenue and expenses of investments in stocks.
442. Revenue and expenses of investments in bonds.
443. Revenue and expenses of other investments.

45. CASH BALANCES—

451. Interest on general cash balances.
452. Interest on special cash balances.
453. Proportion of interest of general city or other cash balances to credit of waterworks.

46. GRATUITOUS WORK—

461. Pay and expenses of employees.
462. Materials and supplies.
463. Free water-supply service.
464. Sundry expenses.

47. SUNDRIES—

471. Revenue from and expenses for sundry rents.
472. Revenue from sundry interest receivable.
473. Revenue from and expenses for sundry services.
474. Revenue from and expenses for sundry objects.
475. Revenue from and expenses for permits.
476. Gains and losses on bond transactions.
477. Sundry gains and losses.

## 5.—PROFIT AND LOSS.

Account 51 is the account into which accounts 0, 1, 2, and 3 are balanced, and its balance is either a *water-service income* or *loss*. Account 52 is the one to be used for balancing account 4, provided that balance is not carried directly into account 5. Account 53 is the one through which bad accounts and bad investments are finally closed out on the books of the concern. This account should be debited and accounts 72, 73, 74, or other appropriate asset accounts credited for all amounts written off through this account. Account 54 is provided for keeping accounts with accrued interest charges paid or payable on account of long or short term loans or bonds, and with accrued rentals paid or payable for the use of subordinate water systems that are leased by the one for which the account is kept. The rentals here included should not be confounded with accounts paid or payable for the use of specified parcels of real property, or for the use of rooms required in the operation of particular branches of the water systems. These should not be included in account 54 or in account 546, but in accounts 248, 257, and 268 of the

operating expense account. The method of recording entries in accounts 54 to 59 must be that adopted by good commercial accountants for similar accounts in all businesses. It should be noted, however, that account 58 is the current balancing account of a municipally operated enterprise with the city. It should be credited with all services rendered by the city to the enterprise, such as rent of general offices and proportionate share of salaries and expenses of the city officials whose services are rendered the enterprise without charge, and a proportionate share of the operating expenses and other costs of other public service enterprises of the city which the enterprises furnish free of cost. The account should also be credited with any appropriations received from the city to cover losses from operation, and all other receipts of wealth or service from the city for which the enterprise makes no payment. This account should also be debited with the value of all services rendered or materials furnished to the city or any departments thereof for which it receives no compensation, and with all transfers of profits to the general city funds or accounts.

After all accounts to be entered for any fiscal or accounting period in accounts 51 to 59 have been so entered these accounts should be closed or balanced as follows: Accounts 51, 52, and 53 should be closed into account 5 and that account balanced; if the balance obtained is a credit one, it will measure the *current income from operation;* while if it is a debit one, it measures the *current loss from operation.* After accounts 51, 52, and 53 have been closed into account 5 and that account balanced as above described, account 54 should be closed into account 5 and a balance taken; that balance, if a credit one, measures the *current surplus from operation;* and if a debit one, it measures the *current deficit from operation.*

Succeeding the closing of accounts 51 to 54 and the last balancing of account 5 as above described, accounts 55 to 59 for all privately operated systems should be closed into account 5, after which account 5 should be balanced and closed into account 88. (See, however, instructions for that account.) In the case of a municipally operated water system the same procedure should be followed if the system is permitted to retain control of its surplus. If, however, such a system is required to transfer all its profits or surplus to the general city treasury, and all losses are borne from such treasury, accounts 51 to 57 and account 59 should be balanced into account 5 and account 5 closed into account 58, and the balance of that account closed into account 95 or 73, according as the balance is a credit or a debit one.

But very few, if any, of the larger systems will require subgeneral accounts subordinate to accounts 51, 52, 53, or 58, hence no such accounts are here given. The subgeneral accounts that may be utilized by the

larger systems subordinate to the other general profit and loss accounts are as follows:

54. INTEREST AND SYSTEM RENTALS—

541. Interest on funded debt.
542. Interest on floating debt.
543. Interest on customers' deposits.
544. Interest on notes and bills payable.
545. Interest on accounts payable.
546. Water system rentals.

55. DIVIDENDS AND OTHER APPROPRIATIONS OF PROFITS—

551. Dividends on debenture stock.
552. Dividends on first preferred stock.
553. Dividends on second preferred stock.
554. Dividends on common stock.
555. Distribution to noncorporate interests.

56. APPROPRIATIONS TO FUNDS AND RESERVES—

561. Appropriations to sinking funds.
562. Appropriations to replacement and renewal funds.
563. Appropriations to special funds.
564. Appropriations to depreciation reserve.
565. Appropriations to deferred maintenance reserve.
566. Appropriations to general reserves.

57. ASSESSMENTS AND OTHER ALLOCATION OF LOSSES—

571. Assessments on stockholders.
572. Contributions from noncorporate interests.
573. Contributions from public and other sources (for use of private waterworks only).

59. SUNDRY APPROPRIATIONS AND ALLOCATIONS—

591. Fluctuations in values of funds.
592. Fluctuations in values of investments.
593. Other balance sheet transfers.
594. Miscellaneous appropriations and allocations.

## 6.—FIXED ASSETS AND FUNDS.

**Fixed asset accounts.**—For enterprises using accounts 61 to 69, as well as for smaller enterprises using only account 6, there should be kept a property book or record, in which the fixed assets and investment securities of the enterprise should be so classified and arranged that the record therein contained will be subdivided to correspond with the scheme of accounts under this subdivision, and will contain a description of every piece of land belonging to the enterprise, a statement of the purposes for which such land was acquired, used, or held, and a detailed exhibit of all improvements on such land. The same record should show in detail all the fixtures, appliances, equipment, and other fixed assets used by the enterprise, so arranged as to exhibit for each specific piece of property the year of its construction or acquisition. The data last mentioned are necessary to provide the basis for recording the additional information which should

be contained in the accounts with fixed assets, namely, those exhibiting the effect of depreciation upon the value of the tangible assets, and the amount of amortization allowed for the intangible assets by recording in the proper asset account the cost of each and every piece of property, the amount of ordinary and extraordinary depreciation suffered upon such property, the amount of amortization allowed during the current year, and the total amount of such depreciation suffered or amortization allowed from the acquisition or construction of the property to the close of each fiscal year.

When the value of properties is changed by additions, betterments, replacements, or renewals, the accounts should record the date of the change and give to the property a current value, the same as is done by cost accounting for the initial value of any new structure or original purchase. In all cases where the value of any structure has been changed by any of the processes mentioned and the value after the change has been ascertained, debit the account in which the value of the asset is recorded with an amount which when added to the value there recorded before the change will be sufficient to make the same equal to the new value. This debit should be balanced by a credit in cash or some appropriate liability account according to the methods of liquidating the costs. If the difference between the book value of the property before the change and the actual value after the change is less than the cost of making the change, then charge the difference to the repair account relating to the property changed and balance the debit by credit entries as for all expenses for repairs.

Any convenient method of recording original values and subsequent changes may be adopted, but the method of presenting the data thus recorded, in order to obtain uniformity, should be as follows:

COST OF CONSTRUCTION AND PRESENT VALUE, YEAR ENDING....., 19..

[Original cost, scrap value at end of useful life, cost of discarded portions and decline in price of material, estimated life, age, depreciation, and present value.]

| Acct. No. | DESCRIPTION OF PROPERTY. | Date of construction, or acquisition. | Estimated life (years). | Age (years). |
|---|---|---|---|---|
| ..... | ..... | ..... | ..... | ..... |
| ..... | ..... | ..... | ..... | ..... |
| ..... | ..... | ..... | ..... | ..... |

| Original cost. | Scrap value at end of useful life. | Cost of discarded portions and decline in prices. | Total depreciation and amortization for period of use. | Present value. | Value at end of previous year. | Depreciation and amortization loss during current year. |
|---|---|---|---|---|---|---|
| $..... | $..... | $..... | $..... | $..... | $..... | $..... |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... |

**Depreciation.**—Losses by depreciation which have been charged as expenses in account 38 or 39 should, if known with a reasonable degree of certainty, be credited to the asset accounts in which are recorded the values of the properties affected by the depreciation. When they are so charged, the asset accounts will at all times contain statements of the present values of the properties recorded therein. When, however, the measure of depreciation is not thus known, an amount should be charged to accounts 38 and 39 sufficient to cover all contingencies, and an amount credited to the asset accounts which will equal the lowest amount of losses that may have been suffered by depreciation, and the balances credited to account 86—"Reserve for losses in suspense"—or some subgeneral account subordinate thereto, which is herein provided for under the title "Reserve for depreciation and amortization losses in suspense." Credit entries of the character here mentioned should be carried on the ledger until such time as the management, through physical inspection of the properties and careful appraisal of their values, has determined the approximate depreciation which the plant has undergone. Such credit entries, almost universally called by accountants "Reserves for depreciation," should be carefully distinguished from similar reserves carried into ledger accounts as a result of an appropriation of "Surplus" after all expenses have been charged to accounts 11 to 19, 21 to 27, and 31 to 39. Such appropriations of surplus alone constitute true reserves. They should be credited in account 85 and not in account 86.

Losses by depreciation which are known to have taken place, or which possibly have taken place, are preferably treated as above set forth. The accounts here presented provide, however, another way of caring for depreciation which has actually taken place. This is done through the use of account 87 and its subordinate subgeneral accounts. These are all "nominal proprietary interest" accounts, or "nominal reserve" accounts for "losses not credited in asset accounts." Amounts charged to accounts 38 and 39 as above, which by the preceding instructions should be credited to the asset accounts, may be credited to account 87 or one of its subordinate accounts entitled "Reserves for losses by depreciation and amortization." The credit entries in such an account will permit of a similar subdivision into primary accounts for fixed assets affected as the one given under account 6. The asset account, when account 87 is employed, will then record only the original cost of the properties, and account 87, or its subordinate accounts, the total depreciation suffered and amortization allowed to date. The amounts recorded in account 87 are "offsets" to the asset accounts and should be so treated in the balance sheet; while amounts recorded in accounts 85 and 86 should both be shown among the proprietary interests on the balance sheet. The amounts recorded in accounts 85 and 86 should not be included on the balance sheet under the same title, since there

is a possible loss to offset the amounts recorded in account 86 but not for those recorded in account 85. Great care should at all times be exercised not to charge to expenses an undue amount to be credited to account 86, since such excessive charge becomes in reality an agency for depressing the current dividends to stockholders or increasing the rates for water consumers.

Depreciation losses charged to account 38 or 39 and credited to account 87 under the circumstances stated above may be allowed to remain credited to that account until the amount of depreciation actually suffered has been ascertained by physical inspection and appraisal by competent engineers.

When an inspection of the properties as above set forth has been made and the depreciation suffered has been ascertained approximately, account 87 should be debited with the amount of such loss and the same credited to the accounts 61 to 68, in which are recorded the values of the properties affected. If the credits in account 87 are greater than the debits entered as last stated, the balance or difference should be credited to account 85, or account 88, as may be deemed best from administrative considerations. If the debit entries of account 87 after the appraisal exceed its credit entries, the balance or difference should be charged to account 38 or 39, provided such charge is not too great to be met from revenue as an expense of the current year. If, however, such amount is too large to be met as an expense in the current year, a part of the same may be debited to the nominal asset account 77 as "unamortized losses by depreciation." (For further directions with reference to such a charge, see instructions for the account last mentioned.)

Attention has already been called to the fact that depreciation is a loss constantly accelerating with the passage of years. If desired, a specified amount may be set aside for depreciation each year, irrespective of those changing losses. When this is done, such a portion of the whole should be charged to accounts 38 and 39 as will cover the actual loss by that cause. The balance should be charged to account 56, or credited to account 83 as "reserve for depreciation."

**Fixed assets and funds.**—In account 62 record all costs or payments to the state or municipality by reason of the corporate and operating franchises of a private company, all costs of private and municipally operated enterprises by reason of preliminary operations, patent rights, and licenses, all unamortized discounts on outstanding stock issued by private companies, and all other intangible general properties. In accounts 61 and 63 to 68 record, as set forth above under "fixed asset accounts" and by the form there given, or some other desirable form, the original costs and present values of the fixed properties of the enterprise, including all costs of original construction, additions, betterments, replacements, and renewals, subdividing them as called for by

the titles of the several accounts given below. In using account 69 for recording the assets of special funds, care should be taken to keep the assets of each fund separate and distinct from those of other funds, and to classify the assets of all funds under distinct heads corresponding in a general way to those given by the names of the several accounts for current assets. The subgeneral accounts provided for use in connection with general accounts 61 to 69 for fixed assets and investment securities are as follows:

61. GENERAL ASSETS—TANGIBLE—

611. Administrative properties.
612. Accounting and commercial properties.
613. Business promotion properties and costs.
614. Miscellaneous general properties.

62. GENERAL ASSETS—INTANGIBLE—

621. Corporate franchises or corporate charter.
622. Operating franchises or highway easements.
623. Preliminary operations.
624. Patent rights and licenses.
625. Unamortized discounts on outstanding stock.
626. Miscellaneous intangible general assets.

63. OPERATING MANAGEMENT PROPERTIES—

631. Operating management office properties.
632. Laboratory properties.
633. Engineering properties.
634. Store room and yard properties.
635. General operating tools and appliances.
636. Miscellaneous operating management properties.

64. COLLECTING SYSTEM PROPERTIES—

641. Water diversion rights.
642. Reservations.
643. Impounding dams and reservoirs.
644. Lake and river cribs.
645. Springs and wells.
646. Infiltration galleries and tunnels.
647. Collecting conduits and reservoirs.
648. Gravity intakes and suction mains.
649. Aqueducts and supply mains.

65. PURIFICATION SYSTEM PROPERTIES—

651. Sedimentation system.
652. Coagulating system.
653. Softening and iron removal plant.
654. Roughing filtration plant.
655. Slow sand filtration plant.
656. Mechanical filtration plant.
657. Ozone sterilizing and aeration plant.
658. Chemical treatment plant.
659. Clear-water basins.

66. PUMPING SYSTEM PROPERTIES—
  661. Pumping stations.
  662. Steam power pumping plant.
  663. Hydraulic power pumping plant.
  664. Electric and gas power pumping plant.
  665. Miscellaneous pumping plant equipment.

67. DISTRIBUTION SYSTEM PROPERTIES—
  671. Transmission mains.
  672. Distribution storage reservoirs, tanks, and standpipes.
  673. Distribution main pipes and specials.
  674. Main pipe valves and valve boxes.
  675. Fire hydrants, fire cisterns, and connections.
  676. Main pipe fixtures and appliances.
  677. Service pipes and stops owned by waterworks.
  678. Meters, meter boxes, and meter vaults furnished rent free.
  679. Fountains, troughs, and other equipment.

68. MISCELLANEOUS PROPERTIES—
  681. General shop properties.
  682. Stable and team properties.
  683. Compensated plumbing work properties.
  684. Rental real properties.
  685. Rented meters, meter boxes, and meter vaults.
  686. Forest lands service properties.
  687. Miscellaneous accessory enterprise properties.

69. FUNDS—
  691. Sinking funds.
  692. Replacement and renewal funds.
  693. Special funds.

## 7.—CURRENT AND NOMINAL ASSETS.

Light general accounts are provided in which to record, or through which to sum up, accounts with current and nominal assets. Account 72, when needed because of the ownership of investments described in its title, should be so kept as to disclose the character of all investments in its own stock and bonds, if any, held by a private company, and the amount of the bonds possessed by a municipal enterprise which were issued by the city controlling it.

**Accounting with bad debts.**—Account 73 is provided for summing up the collectible portion of uncollected revenues, both accrued and billed, or charged but not accrued; and also all amounts due the enterprise on "Accounts receivable" by reason of any nonrevenue transactions. In the larger enterprises the account should be used as the controlling account of a number of subgeneral accounts given the numbers 731 to 739. In closing these subgeneral accounts at the end of any fiscal period, the appropriate accounts should be credited, and account 53 debited with the amount of such debts as the management has reason to believe will not ultimately be collected. When only the general account 73 is used, that account should be credited and account 53 debited in such case.

At the end of each fiscal period account 53 should be further debited with the amount of all debts recorded in account 73 or its subordinate subgeneral accounts which the management desires to hold in accounting suspense, even though their collection is believed to be reasonably certain. Such debit entries should be credited to account 86, or to a subgeneral account subordinate thereto entitled "Reserve for losses by bad debts in suspense." If in the course of time any portion of the debts for which the foregoing debits and credits are made are collected, account 86 or its subordinate subgeneral account should be debited and account 53 credited with the amounts of the collection recorded in accounts 71 and 73. If at a later period it becomes certain that any of these debts for which credit entries have been recorded in account 86 as above directed will never be collected, account 86 should be debited and account 73 credited with the amounts. Debits and credits such as those mentioned in this paragraph should be accompanied with memoranda setting forth the character of the transactions giving rise to them.

**Accounts receivable.**—Subgeneral accounts 731 to 739 and general account 73 should be arranged for recording and summing up (1) the amounts of revenue that accrue or become due that have been billed or charged and those that have accrued or become due from customers of the enterprise but for which no bills have been rendered; (2) the amounts of money collected and other credits allowed on the bills which have been rendered the specified classes of customers; (3) the amounts refunded to customers by reason of erroneous collections; (4) the amounts collectible from the specified customers at the close of the several fiscal periods for which summaries are prepared; and (5) all other amounts charged or collected by the enterprise on accounts receivable. In keeping these accounts observe the following general instructions:

*a.* When revenue bills are regularly made out in advance of the furnishing of the service for which they are rendered, the appropriate account for any given class of such bills should be debited with the amount thereof. The debits in such accounts should be balanced by credits in other accounts as follows: An appropriate account either under summary account 0 or 4 should be credited with the net revenue due on the bills for that portion of the entire period for which the bills are rendered which lies within the fiscal period for which the summaries are prepared, and the balance should be credited to account 96.

*b.* When revenue bills are regularly rendered at the close of fixed periods and after the service has been rendered, and such bills are for a fiscal period which is equal to or less than that for which summaries of results are prepared, they should be credited to the proper subdivisions under summary accounts 0 and 4.

*c.* When revenue bills are regularly rendered at the close of fixed periods which cover the whole or parts of more than one fiscal period for

which summaries of results are prepared account 73 should be debited each fiscal period, and the corresponding accounts under summary accounts 0 and 4 credited with such amounts as previous experience makes probable have accrued on the several classes of service during such period. At the close of the period for which bills are rendered account 73 should be debited or credited by amounts which with the debit entries previously recorded would equal the amounts of the bills rendered.

*d.* When bills are rendered for new or additional assessments between the beginning and close of the billing period, such as referred to under *a*, the amounts of such bills rendered each fiscal period should be recorded by entries substantially as stated under *a* for bills made out at the beginning of the billing period.

*e.* When rebates are granted on bills rendered as described above, or the amounts of such bills are otherwise decreased before their collection, the amount of such rebates or other decreases should be recorded by credit entries in account 73 and by debit entries in the proper accounts under summary accounts 0 and 4, and if the rebate is for past portions of the fiscal period for which the summary is prepared, or if such rebate extends back of such fiscal period, then by debit entries in account 59. But if the rebate is on some bills rendered for a future period, then the amounts should, if they are for a future period be credited to account 73, as above described, and be balanced by proper debit entries in account 96.

*f.* When revenue bills are collected account 73 should be credited with the face of the bills and cash debited with the amount of money received. When bills are rendered for services which it is afterwards determined to render gratuitously, account 73 should be credited and account 46—"Costs of gratuitous work"—debited with the amount.

*g.* When revenue bills which in themselves are not erroneous have been paid in error and later refunded, cash should be credited if paid; but if payment of refund is deferred, then account 94 should be credited and account 73 debited with the amount of all such refunds.

**Accounts 74 to 76.**—These accounts should be kept in accordance with the general rules of accounting for accounts bearing kindred designations, observing that debits for different purposes should be grouped under appropriate heads or assigned to appropriate subgeneral accounts.

**Nominal assets.**—Accounts 77 and 78 are provided for maintaining accounting control over nominal assets. These latter are of two classes: (1) Deferred expenses—unamortized costs and losses of current and previous years—and (2) such nominal assets as those generally called "contingent." The principal deferred expenses of water-supply enterprises are those growing out of depreciation. The method of treating these expenses has already been set forth under the subject referred to. The principles governing accounting for the other deferred expenses are substantially the same as set forth with reference to depreciation.

The methods of accounting for contingent assets and the nominal assets balancing contractual and appropriation liabilities are the same as for all other business enterprises. The specific subgeneral current and nominal asset accounts that can be most advantageously used by the larger water-supply systems in connection with their general accounts 71 to 78 are given below. At the close of that list there is given the item "Corporate deficit" (balancing account). The amounts that would be shown on the balance sheet under this title do not represent any entry in an asset account, either actual or nominal. They are the debit balance of proprietary interest account 88. The subgeneral accounts here referred to follow:

71. CASH—
- 711. General cash.
- 712. Special cash.

72. INVESTMENTS (OTHER THAN FUND ASSETS)—
- 721. Stocks.
- 722. Bonds.
- 723. Other investments.

73. ACCOUNTS RECEIVABLE—
- 731. Metered private service debtors.
- 732. Unmetered private service debtors.
- 733. Other waterworks.
- 734. Municipal service debtors.
- 735. Accessory enterprise debtors.
- 736. Accrued revenues from funds and investments.
- 737. Sundry debtors.
- 738. Stockholders for assessments and noncorporate interests for allocation of losses.
- 739. Current transactions of waterworks with city.

75. PREPAID ACCOUNTS—
- 751. Prepaid insurance.
- 752. Prepaid rents.
- 753. Prepaid water diversion rights charges.
- 754. Prepaid water power rights charges.
- 755. Prepaid taxes.
- 756. Prepaid franchise dues.
- 757. Other prepayments.

76. MATERIALS AND SUPPLIES—
- 761. Materials and supplies in general storerooms and yards.
- 762. Materials and supplies for general purposes.
- 763. Materials and supplies for collecting purposes.
- 764. Materials and supplies for purification purposes.
- 765. Materials and supplies for pumping purposes.
- 766. Materials and supplies for distribution purposes.
- 767. Materials and supplies for incidental operating purposes.
- 768. Materials and supplies for accessory enterprise purposes.
- 769. Scrap and scrap value of disused fixtures and equipment.

77. DEFERRED EXPENSES AND LOSSES—

771. Unamortized discounts on outstanding debts.
772. Unamortized losses by depreciation.
773. Unamortized losses by casualties.
774. Unamortized extraordinary governmental requirements.
775. Unamortized losses by bad debts and investments.
776. Other unamortized costs and losses.

78. MISCELLANEOUS NOMINAL ASSETS—

781. Contingent assets.
782. Authorized provisions for contractual obligations.
783. Authorized provisions for governmental appropriations.

Corporate deficit (balancing account).

## 8.—PROPRIETARY INTERESTS.

Accounts 81 and 82 are provided for keeping account of the proprietary interests of water-supply enterprises which represent the original investments of the proprietors. The different accounts should be used for the different classes of ownership. Stock accounts should be so kept as to disclose the amount of each class of stock and the date of its issue; and partnership accounts should be kept as called for by the rules of accounting for partnerships.

**Accounts with reserves.**—Accounts 85 to 87 are provided for keeping account of three distinct classes of so-called "reserves." Account 85 is provided for keeping account with all true "reserves" or amounts of "surplus" set aside for specified purposes after all expenses, interest, and other charges against revenue have been met and liquidated. Account 86 is provided for such so-called "reserves" as arise when revenue or other asset debits are charged to profit and loss in such amounts as the management believes will in all probability be collected, but which it deems advisable to deduct from the profits of the period during which the debts were accumulated. The same account provides for recording amounts that the management deems proper to charge in accounts 38 and 39 as depreciation, and yet believes to be in excess of the loss that has been suffered by that cause, and hence is carried in so-called "reserve" accounts until the exact amount of loss suffered has been ascertained by physical inspection and appraisal, as set forth on preceding pages. To the same account should be credited all other similar "reserves in suspense." Account 87 is to be used exclusively for "nominal reserves" in the form of credit entries representing losses that are known to have been suffered, but which for any accounting purposes are not written off in the appropriate asset account. All entries in accounts 85, 86, and 87 should be so made as to differentiate the various subclasses of "reserves," whether for bad debts, bad investments, depreciation, or

other losses. The subgeneral accounts that can most generally be used by water supply systems for proprietary interests are as follows:

81. CORPORATE CAPITAL STOCK—

811. Common stock.
812. First preferred stock.
813. Second preferred stock.

83. DEPRECIATION AND AMORTIZATION RESERVE—

831. Depreciation reserve against general assets—tangible.
832. Amortization reserve against general assets—intangible.
833. Depreciation reserve against operating management properties.
834. Depreciation reserve against collecting system properties.
835. Depreciation reserve against purification system properties.
836. Depreciation reserve against pumping system properties.
837. Depreciation reserve against distribution system properties.
838. Depreciation reserve against miscellaneous properties.

84. DEFERRED MAINTENANCE RESERVE—

841. Deferred maintenance of general properties.
842. Deferred maintenance of collecting system properties.
843. Deferred maintenance of purification system properties.
844. Deferred maintenance of steam power pumping properties.
845. Deferred maintenance of hydraulic power pumping properties.
846. Deferred maintenance of electric and gas power pumping properties.
847. Deferred maintenance of distribution system properties.
848. Deferred maintenance of miscellaneous properties.

85. GENERAL RESERVES—

851. Reserve for unamortized premiums on stocks.
852. Reserve for unamortized premiums on outstanding debt.
853. Sinking-fund reserve.
854. Self-insurance reserve.
855. Reserve for revenue discounts.

86. RESERVE FOR LOSSES IN SUSPENSE—

861. Reserve for depreciation and amortization losses in suspense.
862. Reserve for losses by bad debts in suspense.
863. Reserve for losses by bad investments in suspense.
864. Reserve for losses by casualties in suspense.

87. RESERVE FOR LOSSES NOT RECORDED IN ASSET ACCOUNTS—

871. Losses by depreciation and amortization.
872. Losses by bad debts.
873. Losses by bad investments.

88. SURPLUS UNRESERVED (balancing account).

## 9.—LIABILITIES.

Nine accounts are provided for recording data relating to liabilities. Accounts 91 and 92 are for funded and floating liabilities, 93 to 98 for current liabilities, and 99 for nominal liabilities. Account 91 should

be kept so as to disclose for private and public enterprises the character of all classes of long-term bonds outstanding and the date of their issue; and other accounts should be arranged to disclose that information relating to all the other liabilities of record. Attention has already been called to the method of recording credit entries in account 96—"Revenue of future periods levied in advance." Amounts recorded in this account at the beginning of any fiscal period should be proportionately debited to this account and credited to accounts 01 to 07 or 41 to 47 with the beginning of each month of the future period or other period of time for which the accounts are summarized.

**Nominal liabilities.**—The principal nominal liabilities for which the accounting of water-supply enterprises requires specific accounts are those for contingent liabilities and liabilities on future contracts. To these should be added in the case of municipally operated enterprises the credit entries that represent the authorizations of appropriation acts to make expenditures.

The subgeneral liability accounts which can most generally be used by the water-supply systems are shown in the following list:

91. FUNDED DEBT—

911. First mortgage bonds.
912. Second mortgage bonds.
913. Third mortgage bonds.
914. Debentures.
915. Municipal bonds.

93. CUSTOMERS' DEPOSITS—

931. Revenue guaranty deposits.
932. Street main extension deposits.

94. NOTES AND BILLS PAYABLE—

941. Notes and drafts payable.
942. Other loan evidences.
943. Judgments.
944. Revenue refunds.

95. ACCOUNTS PAYABLE—

951. Overdrafts.
952. Adjusted claims and accounts.
953. Unadjusted claims and accounts.

96. REVENUE OF FUTURE PERIODS LEVIED IN ADVANCE—

961. Rates for metered private service.
962. Rates for unmetered private service.
963. Rates for service to other waterworks.
964. Rates for municipal service.
965. Revenue from accessory enterprises.
966. Revenue from funds and investments.
967. Sundry revenues.

97. INTEREST AND SYSTEM RENTALS ACCRUED—

971. Interest on funded debt.
972. Interest on floating debt.
973. Interest on customers' deposits.
974. Interest on notes and bills payable.
975. Interest on accounts payable.
976. Water system rentals.

98. DIVIDENDS AND OTHER APPROPRIATIONS OF PROFITS PAYABLE—

981. Dividends on debenture stock.
982. Dividends on preferred stock.
983. Dividends on common stock.
984. Distribution of profits to noncorporate interests.

99. NOMINAL LIABILITIES—

991. Contingent liabilities.
992. Contractual obligations.
993. Governmental appropriation liabilities.

## CLOSING ACCOUNTS.

In closing the books of a waterworks having general and subgeneral accounts, the balance of each account should be carried into the next higher account; that is, subgeneral account balances should be carried to the general accounts; and the balances of the general accounts then in turn should be carried to the summary accounts, except where the instructions for the use of accounts hereunder may direct to the contrary. In the case of accounts recording assets, liabilities, and proprietary interests, however, the balances of these accounts, of whichever order, may be forwarded into the next fiscal period in such detail as may be desired, the summarizing of the lower orders of accounts into the next higher orders being done, in such cases, in the balance sheet only.

O